CLAIMS

1.  A window stack control method for managing a stack of
a plurality of windows which are displayed on a display unit based
5   on one or more application programs, comprising the steps of:
designating a group of a window from the application program;
receiving a request for displaying the window from the
application program; and
collectively arranging the window as a group so as to
10  determine a stacking order of the window in the group when displaying
the window in response to the display request.

2.  The window stack control method according to claim 1,
wherein
15      in the collectively arranging step, when a request for
displaying a first window which is not collectively arranged as
a group is received from the application program, a first window
group of windows which belong to a same group as the first window
and which are not collectively arranged as a group and a second
20  window group of windows which belong to a same group as the first
window and which have been collectively arranged as a group, are
collected with a stacking order in the first window group being
maintained such that the stacking order of the first window group
is consecutively followed by a stacking order of the second window
25  group.

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3.   The window stack control method according to claim 1
or claim 2, further comprising

a step for creating a representative window for each group;
5   wherein

the collectively arranging step includes handling, when
collectively arranging a window as a group so as to determine a
stacking order of the window in the group, the window as a child
window of the representative window.

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4.   The window stack control method according to any of claims
1 to 3, further comprising the steps of:

receiving a request for shifting a top of a group in a window
stack and a request for shifting a bottom of a group in a window
15   stack, from the application program; and

changing the stack in the group in response to the request
for shifting the top or the request for shifting the bottom.

5.   The window stack control method according to claim 4,
20   wherein

the stack changing step includes changing a stack so as to
collect, when receiving, from the application program, the request
for shifting the first window to a top of a group in a window stack
and the request for shifting the first window to a bottom of a
25   group in a window stack, a first window group of windows which

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belong to a same group as the first window and which are not collectively arranged as a group and a second window group of windows which belong to a same group as the first window and which have been collectively arranged as a group with a stacking order in

5    the first window group being maintained such that the stacking order of the first window group is consecutively followed by a stacking order of the second window group.


6.   The window stack control method according to any of claims

10   1 to 3, further comprising:

a step for receiving a request for shifting a top in units of group in a window stack and a request for shifting a bottom in units of group in a window stack, from the application program; and

15   a step for changing the stack in units of group in response to the request for shifting the top or the request for shifting the bottom.


7.   The window stack control method according to claim 5,

20   wherein

the stack changing step includes changing a stack so as to collect, when receiving, from the application program, the request for shifting a first group to a top in units of group in a window stack and the request for shifting a first group to a bottom in

25   units of group in a window stack, a first window group of windows

which belong to the first group and which are not collectively arranged as a group and a second window group of windows which belong to the first group and which have been collectively arranged as a group with a stacking order in the first window group being

5   maintained such that the stacking order of the first window group is consecutively followed by a stacking order of the second window group.

8.  The window stack control method according to claim 1,

10  wherein

a window which is designated as a priority window by the application program is not caused to belong to any group and the priority window is caused to be always disposed higher in stack than all the windows which are displayed on a display unit and

15  which belong to any of the groups.

9.  The window stack control method according to claim 1, wherein

a window disposed lower in stack than a window belonging

20  to a group at the top is always in a state of non-display.

10.  The window stack control method according to claim 1, wherein

a specific window is disposed immediately below a window

25  whose stacking order is the bottom among windows belonging to a

group at the top.


11.    The window stack control method according to claim 4
or claim 6, wherein

an X window system and a window manager manage a stack of
a plurality of windows, and

a specific window is disposed immediately above a group at
the top.


12.    The window stack control method according to any of
claims 1 to 3, wherein

an X window system and a window manager manage a stack of
a plurality of windows, and

the window manager confirms whether or not its recognized
stack conforms to a stack recognized by the window system when
receiving a window destruction notification, and, in the case of
non-conformity, performs processing for conforming a stack
recognized by the window system to a stack recognized by the window
manager.


13.    The window stack control method according to any of
claims 1 to 3, wherein

an X window system and a window manager manage a stack of
a plurality of windows, and

the window manager sets a flag when requesting the window

system to change a stack, and confirms whether or not its recognized stack conforms to a stack recognized by the window system only when the flag is set at the reception of a window destruction notification, and, in the case of non-conformity, performs processing for conforming a stack recognized by the window system to a stack recognized by the window manager, thereby to put the flag down.

14.    The window stack control method according to claim 1, wherein

the collectively arranging step includes collecting, when a request for displaying a first window which is not collectively arranged as a group is received from the application program, the first window and a second window group of windows which belong to a same group as the first window and which have been collectively arranged as a group such that the stacking order of the first window is consecutively followed by a stacking order of the second window group.

15.    A window management program for managing a stack of a plurality of windows which are displayed on a display unit based on one or more application programs, wherein a computer is operable to execute the steps of:

designating a group of a window from the application program;

receiving a request for displaying the window from the

application program; and

collectively arranging the window as a group so as to determine a stacking order of the window in the group when receiving the display request.

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16. A window management apparatus for managing, when displaying a plurality of windows on a display unit, a stack of the windows, comprising:

one or more application programs for displaying one or more

10 windows on the display unit;

a window management program for managing a stack of the windows displayed by the one or more application programs; and

a processing unit for executing the application programs and the window management program, wherein

15 the application program designates a group of a window with respect to the window management program, and

the window management program performs control, when receiving a request for displaying a window from the application program and displaying the window, so as to collectively arrange

20 the window as a group so as to determine a stacking order of the window in the group.

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